Gallbladder Varices - a Case Report

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Abstract

Gallbladder varices are relatively rare ectopic varices in patients with portal hypertension. We present here a case of gallbladder varices accurately diagnosed by color Doppler sonography. A 51-year-old woman was admitted to our unit with recurrent esophageal varices bleeding due to extrahepatic portal vein occlusion after splenectomy. Bleeding was controlled by endoscopic band ligation and esophageal varices were eradicated after the second endoscopic session. Doppler imaging showed the existence of portal cavernoma and gallbladder varices. The close follow-up period after complete eradication of esophageal varices showed no enlargement of varices of the gallbladder or complications related to them.

Color Doppler sonography is a valuable noninvasive imaging technique for assessment of portal hemodynamic profile in patients with portal cavernoma as well as useful in detecting gallbladder varices. Preoperative correct diagnosis of gallbladder varices should increase the surgeon's vigilance during biliary tract surgery in patients with portal hypertension in order to avoid hazardous complications.

Key words

Gallbladder - varices - portal hypertension - color Doppler ultrasonography

Rezumat

Varicele veziculei biliare sunt varice ectopice relativ rar prezente in hipertensiunea portala. Prezentăm un caz de varice ale colecistului diagnosticate prin ecografie color Doppler. O pacientă în vârstă de 51 de ani a fost internată cu hemoragie recurentă din varice esofagiene după o tromboză de venă portă postsplenectomie. Hemoragia a fost controlată prin ligaturi elastice, iar după o nouă sesiune de endoscopie, varicele au fost eradicate. Examinarea Doppler a evidențiat un cavernom portal şi varice pericolecistice. Urmărirea post eradicarea varicelor esofagiene nu a evidențiat dilatarea varicelor pericolecistice sau apariția unor complicații legate de acestea.

Ca şi alți autori, considerăm ecografia color Doppler ca metodă inagistică neinvazivă valoroasă pentru evaluarea profilului hemodinamic portal la pacienții cu cavernom portal, şi utilă pentru detectarea varicelor pericolecistice. Diagnosticul preoperator corect al varicelor pericolecistice trebuie să mărească vigilența chirurgului în cazul intervențiilor pe tractul biliar la pacienții cu hipertensiune portală, pentru a evita posibile complicații.

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Introduction

Gallbladder varices (GBVs) occur as venous collaterals due to extrahepatic portal vein occlusion (EHPVO) (1-5). Review of the respective literature shows that appearance of GBVs in patients with liver cirrhosis is a very rare entity which may or may not be associated with EHPVO (3-5). According to an extended review by Safadi et al (6), only 77 cases of GBVs were reported in the English literature until 1996.

This paper reports an additional case of GBVs due to portal cavernoma. The etiology, development and diagnosis of GBVs are discussed following the presentation of this case, as well as a review of the relevant literature.

Case report

In December 2001, a 51-year-old female was admitted to Kishinev Emergency Hospital with acute gastrointestinal bleeding, manifested by multiple episodes of hemathemesis and melena. The previous medical history showed that the patient had splenectomy for hypersplenism and massive symptomatic splenomegaly in 1967, and esophagogastric devascularization for recurrent esophageal variceal bleeding

in 1985. During the last ten years after a non-shunting procedure, seven episodes of variceal bleeding were recorded, and hemostasis was obtained by Sengstaken - Blakemore balloon tamponade and/or vasoactive drugs.

Physical examination was unremarkable. Blood pressure and pulse rate were 100/60 mm Hg and 100 beats/min in the supine position. The laboratory values on admission were: red blood cell count $3.5x10^{12}$/L; Hb 11.4g/dL; Ht 33%; prothrombin time 94%; platelet count 275,000/mL.

Emergency esophagogastroduodenoscopy revealed large-size esophageal varices (F3, Li+m, RCS +++) with oozing bleeding. No other site of bleeding was detected. An esophageal band ligation (EBL) was successfully performed with a Saeed-Six-Shooter device (Wilson-Cook® Medical Inc., Winston-Salem, North Carolina, USA). The bleeding was controlled with six elastic "O" rings. The second endoscopic session of EBL was required for complete eradication of esophageal varices (F0-1, RCS-).

Color Doppler sonography clearly showed a total splenomesenterico-portal thrombosis and sponge-like mass of collateral vessels around the main portal vein, which might have been an indicator of cavernous transformation of portal vein (portal cavernoma) (Fig.1). In addition a tortuous, anechoic, serpentine area in the wall of the gallbladder and pericholecystic bed showing venous flow on Doppler imaging was detected. These findings were consistent with GBVs which drained into the intrahepatic portal venous branches (Fig.2).

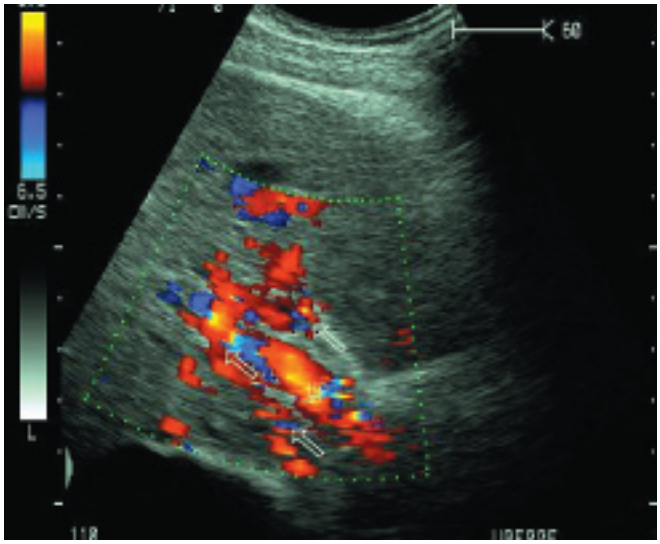

Fig.1 Color Doppler ultrasonography: portal cavernoma.

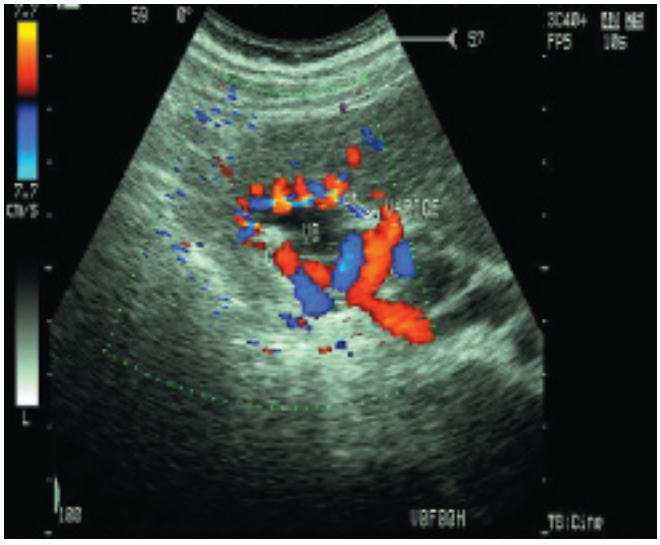

Fig.2 Color Doppler ultrasonography: gallbladder varices.

Regular follow-up examinations after discharge from the hospital were unremarkable, and a three-year follow-up examination did not show enlargement of GBVs or any complications related to them after complete eradication of esophageal varices.

Discussion

GBVs are unusual ectopic or extraesophageal varices that may develop in patients with portal hypertension, particularly in those with EHPVO (1-5). There have been few reports about GBVs in liver cirrhosis with patent portal vein (5,7).

From a pathological point of view, GBVs represent dilated vessels in the wall (2,8,9) or in the bed of the gallbladder (6,10). Moreover, development of portal cavernoma leads to formation of hepatopetal collaterals around the common bile duct (CBD) and allows protrusion of the varicose paracholedochal veins (Petren's plexus) into the lumen of the CBD (11).

The exact frequency and significance of GBVs in patients with cirrhotic and non-cirrhotic portal hypertension is being assessed at present. The incidence of GBVs is reported to be 12% to 30% (2,7,12,13). Recently, Chawla and colleagues (4) studied one hundred and two patients with different forms of portal hypertension (38 with cirrhosis, 29 with non-cirrhotic portal fibrosis and 35 with EHPVO) and found that GBVs were present in 5(13%) *vs.* 7(24%), and 12 (34%) respectively.

GBVs are difficult to diagnose using conventional imaging techniques (6,9). There are three pitfalls proposed for correct diagnosis of GBVs by conventional imaging techniques. They are: (i) rarity of this entity; (ii) small caliber of GBVs; and (iii) presence of numerous large collaterals in porta hepatis and hepatoduodenal ligament (2).

There are only two reports about the demonstration of GBVs as filling defects of gallbladder on oral cholecystogram, which can be exactly identified by ultrasound only (8,14,15). It is a well-established fact that Doppler ultrasonography is a more sensitive and specific imaging technique in detection of these entities (2,3,6,7,16). GBVs were defined as anechoic, serpentine areas in the wall or around the gallbladder, showing venous flow on Doppler imaging (2,7,12). We hold the opinion, along with others (4,6) that color Doppler sonography is the gold standard for diagnosis of GBVs in patients with EHPVO. Moreover, in our case such as in others (3), color Doppler investigation demonstrates the direct communication of GBVs with intrahepatic portal vein branches. Despite the progress in imaging techniques, CT scan, MRI and angiography appear as less sensitive methods for demonstration of these ectopic varices (2,10,17). Recently, Palazzo et al (9) published an article about the

diagnosis of GBVs by endoscopic ultrasonography and demonstrated that this entity was present in 9 (43%) from 21 patients with EHPVO.

According to Rathi et al (13), the presence of GBVs did not correlate with the size of esophageal varices, Child Pugh grade, presence or absence of gastric varices, portal gastropathy, and the number of sessions of sclerotherapy or splenorenal shunt placement. On the contrary, no GBVs were detected in six patients who had patent surgical splenorenal shunts. Moreover, GBVs did not correlate with the site and extent of EPVO, the presence of a spontaneous porto-caval shunt, or endoscopic obliteration of esophageal varices (12). Our case report confirmed these findings.

Generally, non-complicated GBVs alone do not have clinical manifestation. GBVs cause some gallbladder stasis, but do not impair gallbladder function and hence seem unlikely to contribute to gallstone formation (4). On the other hand, portal cavernoma formation, CBD varices and ischemic injury of the bile duct were implicated as causes of portal biliopathy (11). The majority of these patients are asymptomatic, but occasionally they develop biliary obstruction, cholangitis and choledocholithiasis (9,18-21).

The clinical significance of GBVs is their propensity to bleeding during biliary surgery. Thus, the surgeon should be aware of such an incidence since these varices can be a source of major blood loss (2,6,13). In rare instances, GBVs may cause spontaneous hemobilia (16,22,23), life-threatening intraabdominal bleeding (5), or even rupture of the gallbladder (24). The GBVs hemorrhage is a rare, but potentially catastrophic complication of cirrhosis (5).

Moreover, a few cases of massive gastrointestinal bleeding from the anastomotic area varices of cholecystojejunostomy are reported in the English literature (22,23,25,26). Traditionally, surgery is being used for treatment of varices in this area. In spite of this generally adopted agreement, recently Getzlaff et al (25) reported a successful treatment of this rare condition by enteroscopic sclerotherapy using cyanoacrylate.

Finally, there is much controversy about the optimal treatment of esophagogastric varices due to EHPVO. There are sufficient data suggesting that EBL is more suitable for treating acute variceal bleeding compared with other modalities (27). We agree with the opinion that EBL is clearly indicated for EHPVO patients with vessels too small for surgical anastomosis, or with extensive thrombosis of portal venous system (unshuntable portal hypertension) contraindicating any surgical procedure (27).

In conclusion, our case demonstrated that color Doppler sonography is the best procedure for diagnosis of GBVs. The follow-up did not demonstrate GBVs enlargement or complications related to them after complete eradication of esophageal varices by EBL.

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